

# Mandal wise Drinking Water and Sanitation Conditions of Telangana State

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**Abstract:** Overall the world countries are facing drinking water and sanitation problem. As per the world fact sheet out of 193 UNO countries, only 16 countries are open defecation free countries but not reached 100% of the drinking water facilities. In the present scenario India has performed poorly in terms of the latrine facilities. In the rural area of the country, 30.7% and 21.9% households are having the latrine facilities period from 2001 to 2011. Some of the better facilities observed in the urban areas. According to New Global Index report, India's rank stands at 93th place. Recently Indian government has launched Swachh Bharat mission (SBM). After this programme some growth is observed in the sanitation facilities. Sanitation is the primary need of public health and the situation in Telangana is alarming. Studies show that rural households have very little access to the drinking water and latrine facilities. Telangana state out of 459 Mandals, 327 mandals are having rural population. In Telangana 54% and 52.5% of the households are having drinking water and latrine facilities within the household premises. There is huge difference between rural and urban household's facilities. Hyderabad and Rangareddy districts are having better facilities. Rural Rangareddy having poor facilities. Karimnagar and Khammam districts are having some blameless facilities. Warangal, Nizamabad and Medak districts are performing not well and Adilabad and Mahbubnagar districts mandals are having worst situation in entire state.

With this back ground, the current paper is based on secondary data focusing mainly on sanitation condition in rural India and Telangana and its districts. Total analysis also examined to the rural Adilabad district including with mandals. GIS Techniques are used to preparing the maps and these maps are used to analyse of the paper.

**Key Words:** Drinking Water, Sanitation, Households, Rural& Urban.

## Introduction:

Water and sanitation are the primary needs of public health and the situation in Telangana is alarming. Studies show that rural households have very little access to sanitation facilities and drinking water facilities. These two indicators play a vital role in human development. The World Health Organization states that: "Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and feces. Sanitation also refers to the safe disposal of human excreta. On the Water, Sanitation and Hygiene (WASH), WHO and UNICEF together working lot of research. As per the new global index report, India has performed poorly in terms of the drinking water and sanitation facilities. According to New Global Index report, India's rank stands at 93<sup>th</sup>, while Pakistan stands at 5<sup>th</sup> rank.

In India, more than 70% of the people live in rural areas, while the rest of the population lives in semi urban and urban areas. Drinking water supply and sanitation conditions in India continue to be inadequate despite longstanding efforts by various levels of government and communities to improve coverage. The level of investment in water and sanitation, albeit low by international standards, has increased in size during the 2000s. In poor urban communities around the world, thousands of

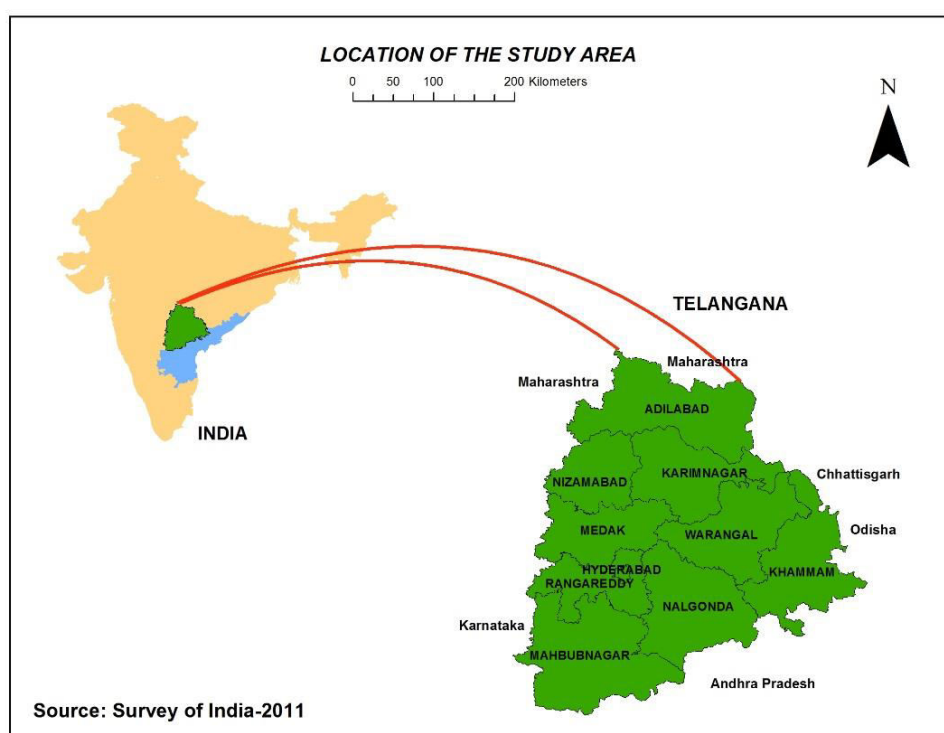
children die every day from preventable diseases due to poor provisions of water and sanitation. India is also facing more basic problems such as food scarcity, water contamination, poor sanitation facilities and hygiene problems. These are very basic needs to every human being. In India, people below the poverty line are not getting sanitation facilities although State and Central governments are trying to provide all facilities to all people. Drinking water is also basic need for every human being. Improved water supply means to provide 40liters per day of drinkable water within the distance of 1.6km or 100m of elevation difference and to provide at least one pump per 250 persons. Indian Prime Minister started the “Swachh Bharat mission “on October, 2014 in all over India. This programme encourages the construction of individual toilets within households and avoiding dumping garbage in open places. Inspiration for this programme was the “Swachh Hyderabad” program started by Telangana State’s Chief Minister. Telangana government has started the drinking water grid scheme and this project’s to provide adequate and drinkable water to every household’s premises in the entire state. All the government bodies are working on this programme.

### Objectives of the Study:

- 1) To study district wise Drinking Water and Sanitation facility in state.
- 2) To analyze Mandal wise Drinking Water and Sanitation facility in the state.

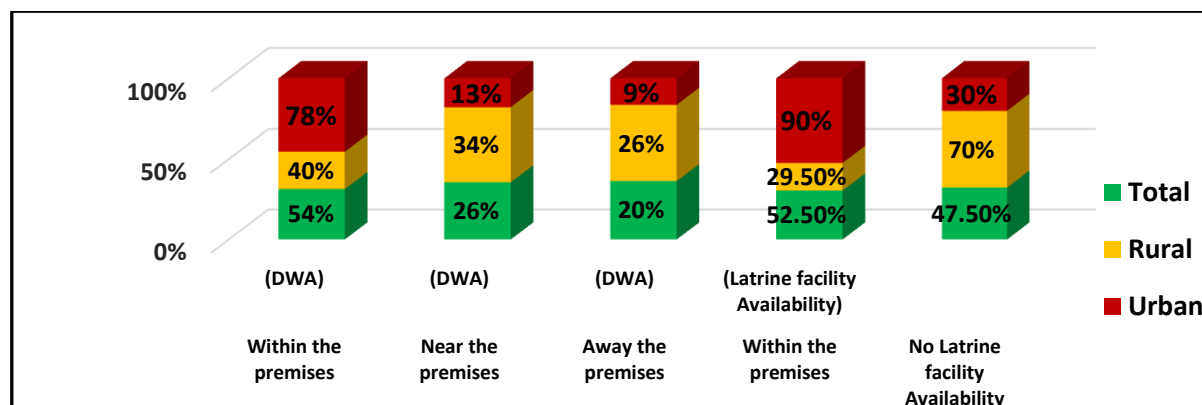
### Overview of Telangana State:

Telangana became the 29<sup>th</sup> state of India on 2 June 2014. It was previously a part of the state that was earlier known as Andhra Pradesh. The city of Hyderabad would serve as the joint capital of Telangana and remain part of Andhra Pradesh for ten years. It has 10 districts and 459 Mandals. The new state has 3, 50 lakhs population; male population is 176.1 lakhs and female population is 173.9 lakhs. 213.9 lakhs population lives in rural areas and 136.1 lakhs population lives in urban areas. Total households of the state are 836 lakhs, and in this figure, 519 lakhs households are in rural areas and urban area has 317 lakhs households. Based on area, Mahbubnagar is the biggest district and smallest is Hyderabad.



**Figure1: Location of the study Area**

In Telangana, 62% households are in rural areas, urban has 38% households. Overall in the state, 54% of households have drinking water facilities within the premises. In the rest of the households, 26% of household's people have these facilities very near the premises and rest of the (20%) household's people going to fetch the water above 500 meter distance. Drinking water problems are very high in rural areas compared to urban areas. Only 40% of the rural households have drinking water within the premises. 33% of the household's people have facilities near the premises (below 500 meters) and 26% of the household's population have facilities away from the premises (Above 500meter distance) or the people has to go far to fetch water. Urban households have 78% of their drinking water within the house holds premises. Only 13% households have drinking water near the premises and only 9% households population has to go far to fetch water.



**Graph 1: Drinking water and Sanitation facility in the household's premises in the state**

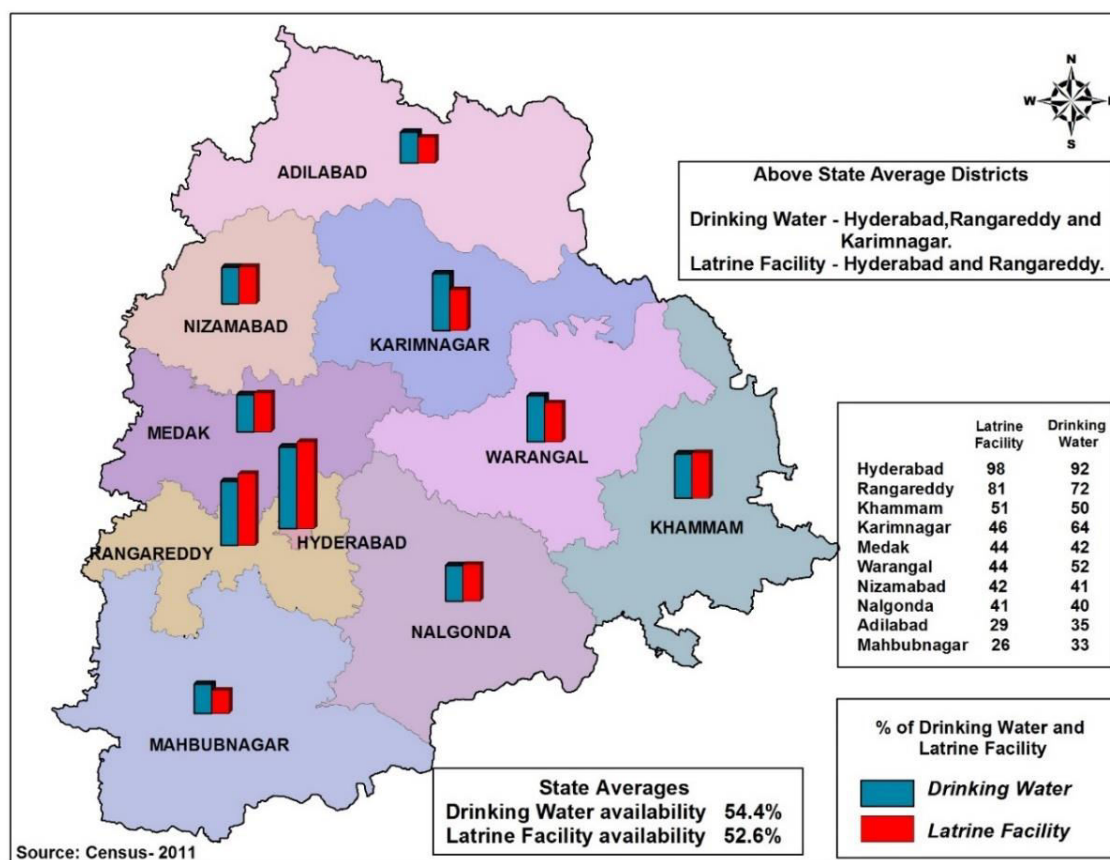
**Source:** Census-2011. DWA= Drinking water Availability.

Overall in the state, 52.5% households have latrine facilities within the premises. 47.5% household population does not have the facility. Urban areas households' population has good latrine facilities with above 90%. Only 10% of household's population does not have latrine facilities in their premises. Total households availability percentage of drinking water (54%) and latrine facilities (52.5%) are almost all equal. It is different in rural and urban points of view. In rural areas, 40% of households have drinking water within the premises while 30% of households have latrine facilities in the premises. As per this data 10% of households have a chance to construct latrines in households due to these 10% households have already water facilities within the households. Urban households have better latrine facilities (90%) but some are deficient in drinking water facilities (78%). If government and other organization put in efforts in these lacking areas, it will improve the situation. I hope Telangana state's "Drinking water grid" project will fulfill this gap.

### **District wise Scenario in Telangana State:**

Telangana State is better position in drinking water and sanitation facilities; more than 50% of households have these facilities within the premises. In both situations, Hyderabad has 92% and 98% and Rangareddy has 71% and 81% households' having drinking water and latrine facilities within the premises respectively. If excluded these districts, remaining Telangana districts are having 45.5% of drinking water and 40.3% Latrine facilities. Khammam district have 50%, 51% and Karimnagar 64%, 46% of households are having drinking water and latrine facility in the premises respectively. Both the cases these districts are also better situation on par with Hyderabad and Rangareddy districts. Medak, Warangal, and Nizamabad and Nalgonda districts households are having above 40% both the toilets and drinking water facility within the premises. Adilabad and Mahbubnagar districts are having very poor conditions with 30% and 33-35% drinking and sanitation facilities respectively.

Mahbubnagar district is a one of the most backward district in the new state. The main reason is people are Illiteracy, most of the areas are effected with drought and maximum people are living in rural areas. It has only 55% literacy rate and it also have 85% of rural population.



**Figure 2: District wise % of Drinking Water and Sanitation facility**

Adilabad district has more rural, tribal population and forest also very dense due to this reason it having poor facilities. It has 28% urban population and 72% rural population. After Hyderabad, Rangareddy and Warangal are the highest urban populations but it is having very poor in drinking water and sanitation facilities.

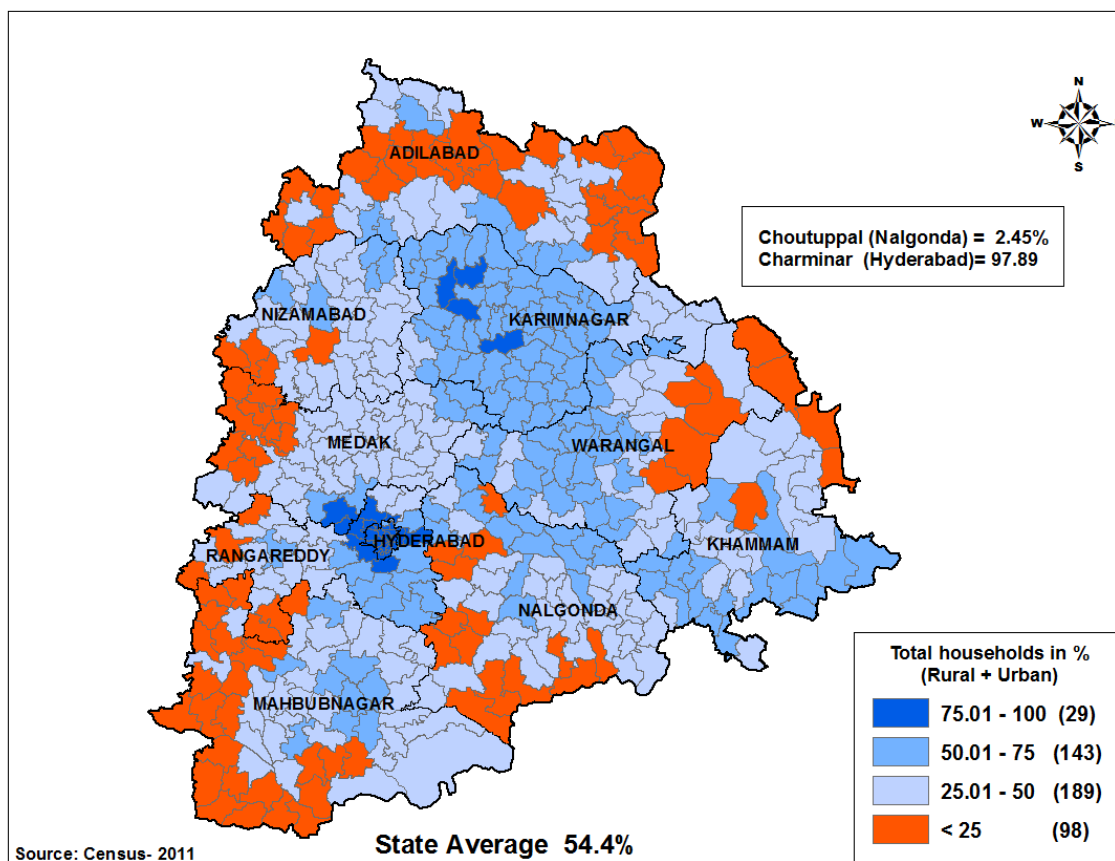
### **Mandal wise scenario:**

Telangana state has 459 Mandals. In overall the state only 20 Mandals have been fully urbanized, 112 have mixed with rural and urban population and the remaining 327 Mandals have only rural population. Actually united Andhra Pradesh state, Telangana region has 464 Mandals but as per 2014 Re organization bill, 7 Mandals were merged into Andhra Pradesh state due to Polavaram irrigation project. In these 7 Mandals namely, Kukunoor, Chintur, Vara Ramachandrapuram, Velairpadu and Kunavaram (5 Mandals) Mandals are totally merged but other two Mandals namely, Bhadrachalam (Excluding urban area) and Burgampad are partially merged into Andhra Pradesh state. These 7 Mandals have approximately 54039 rural households and 2 lakhs population (asper Census-2011). Urban households are not merged.

### **Drinking water facilities:**

Entire state has 54.4% house-holds with drinking water facility in their premise. In total Telangana, 15 Mandals households are having above 90% drinking water facility within the premises. All Mandals belongs to Hyderabad district. 29 Mandal households have drinking water facility between 75-100% and

143 Mandals are covered above state average. 98 Mandals households are having below 25% drinking water facility in the household premises. In overall Telangana state, the highest number of facilities was in Amberpet (97.5) and Charminar (97.9) Mandals. While worst situation Mandals are Choutuppal and Sirpur (U) Mandals less than 5% of the drinking water facility within the household premises. Choutuppal Mandal (Nalgonda) has very poor situation, it has only 2.45% of drinking water. In Adilabad district Sirpur (U) (3.71%) Mandal is facing severe water problems due to depth of ground water.



**Figure 3: Mandal Wise % of Households with Drinking Water Facilities within the Premises**

Amongst all the 459 Mandals, 7 Mandals of the Hyderabad district, more than 95% of the households have drinking water facilities within the premises. They are Bahadurpura (95.1), Musheerabad (95.3), Himayathnagar (95.7), Khairatabad (95.8), Ameerpet (96.6), Amberpet (97.5) and Charminar (97.9). Thirumalagiri Mandal is only backward Mandal in Hyderabad district. It has only 65%. Due to more slums and some of the colonies covered with Cantonment area. Government and GHMC are together or individually to take precaution to changing the situation of the Mandal. It need to some policy level caution and recommendations to improve the drinking water facility in the household's premises.

Rangareddy district households are having good drinking water facilities. Some of the Mandals, which are surrounding by the Hyderabad district are in a more advanced position. Uppal and Balanagar Mandal households are having more than 90% in premises. Some other Mandals are needed policy level recommendation to improve the situation of the drinking water such as Ghatkesar (75%), Serilingampally (76.8%), Rajendranagar (80%), Malkajgiri (85%) and Saroornagar (86%) Mandals. Basheerabad (16%), Dharur, Kukacherla, Ghandeed, Marepally, Peddemul, Doma, Yelal and Bantwaram Mandals households having less than 30% of the drinking water facility within the premises. If Government will find out the reason to lack of the facilities and to put more efforts then the situation will improve.



After Hyderabad and Rangareddy districts, Karimnagar district is better position. This Mandals having good drinking water facilities. Karimnagar Mandal households are having above 85% of the facilities within the premises followed by Jagityal Mandal (83%). When compare to state other urbanized Mandals, these Mandals are in better position. Some Mandals are facing drinking water problems. 6 Mandals have less than 50% of the drinking water facility within the household premises. Malharro and Mutharam (Mahadevpur) Mandals have 27% and 34% respectively; these Mandal people brought to fetch water to domestic usage. In Karimnagar district 47 Mandals (90% of the total mandal) households are having more than 50% of the drinking water facilities and above 75% facilities only 4 Mandals are having facilities in the household's premises. Overall the study Karimnagar district is the inspired district to all other districts. If all other districts to take role model to this district, definitely, districts will change their situation.

Warangal district having below state average (54.4%) facilities. None of the Mandal is not above the 75% of the drinking water facilities. All Mandals comprise below 73%. Only Hanamkoda Mandal has reached 72% and Warangal having 67%. Except these two Mandals, 25 Mandals lies between 50-66%. Dharmasagar and Wardhannapet Mandals are having 63% and 67% respectively. Bhupalapalli Mandal households are having 62% of the drinking water facilities. Amongst all Mandals, 20 Mandals households are having 25 - 50% of the drinking water facilities, and only 4 Mandals are having below 25% of the facilities. Kothagudem and Gudur Mandals are have very low coverage with 13% and 20% respectively. Hanamkoda and Warangal twine cities are needed certain actions and policy level recommendations to improve the drinking water situation within the household's premises. Warangal district has agency area mandals such as Tadvai, Khanapur and Eturnagaram Mandals. These Mandals having 20%, 28% and 30% respectively and it's also required help from government side

Khammam district has 50% drinking water within the premises. This district last 7 Mandals on the bifurcation issue and these are merged into the Andhra Pradesh state. Only Dummugudem (11%), Wazeed (19.68), Tekulapalle (20%), Cherla (21%) and Venkatapuram (22) Mandals have less than 25% and 18 Mandals lies between 50-75%. Madhira and Sattupalli Mandals are having above 71%. The district head quarter Khammam households are having 64%. District has more Coal mines areas, such as Singareni (43%), Palwancha (45.5%) and Kothagudem (53%) Mandals are having better drinking water facility within the household's premises. Bhadrachalam division Mandals are covered with dense forest and it rural part merged into the Andhra Pradesh state. Rest of the temple area or urban area having below 50% facilities. This division needs to improve the situation of drinking water facility in the house holds premises.

Medak district having 44% drinking water facilities. Only Patancheru and Ramachandrapuram Mandals are having more than 80% facilities. These are fully urbanized and well developed Mandals in the district and having high industrial areas. Only 5 Mandal households are having 50-75% drinking water facility. Siddipet Mandal having 61% and Nangnoor Mandal having more than 70%. Nangnoor mandal has covered with rural population, when compare to some of the urban population Mandal such as Siddipet, it has very high in terms of the drinking water facilities. Chinnakodur and Sangareddy Mandal households are having 50% and 60% respectively. Amongst all Mandals, 10 Mandals are having less than 25% of the drinking water facilities. Manoor and Kangti Mandals are having 9% and 12% respectively. This district gets good water source from Manjeera River, but it is not used properly. Nizamsagar and Singure projects are major sources but this district not having more facilities.

In Nalgonda District, only 39.7% households are having drinking water facilities. Majority of the Mandals are affected with fluoride. Due to this problem Nalgonda people are facing more health problems. District

has more than 81% of the rural population and it is also one of the reasons for poor condition. Nalgonda (73.57 %) and Suryapet (70.52 %) Mandals are having drinking water facilities in the range of 70 to 75%. Yadagirigutta is one of the pilgrim places of the Hindu religion and it covered only 60.5% drinking water facility in the household premises. Telangana State Government has taken decision to develop in all aspects. 14 Mandals (out of 59 mandals) are having the least accessibility to drinkable water less than 25% and therefore, people have to go farther to fetch water. Marriguda (13.13%), Pochampalle (12.04%) and Choutuppal (2.45%) are the lowest performing Mandals amongst all Mandals.

Nizamabad District households are having 41.1% drinking water within the household premises. Mortad (62.32%), Nizamabad (58.52%), Balkonda (54.24 %) and Bodhan (54.75%) Mandals are having drinking water facilities in the range of 55% to 65%. District head quarter has also not well performed; it has plenty of resources (very near to SRS project). It needs certain policy level recommendation to provide 100% drinking water facility to all households. Kamareddy and Armur Mandals restricted to 42% and 48% respectively. Pitlam, Gandhari, Navipet, Jukkal and Bichkunda Mandals are having low accessibility to drinkable water within the premises (Less than 25%). Pitlam and Gandhari are the lowest performing Mandals; they have 14.62% and 19.41% respectively in terms of availability of drinking water.

Adilabad District households are having 35% drinking water facility within the premises. Luxmanchanda (54%), Nirmal (56%) and Mancherial (67%) Mandals are having the drinking water facility in the range of 54 to 70%. Adilabad mandal has constituted only 50.2%. Amongst all mandals, 25 Mandals have the less than 25% accessibility to drinkable water within the premises therefore; people have to go farther to fetch water. Sirpur (U), Narnoor, Kerameri, Bazarhathnoor and Inderavelly Mandals are having less than or equal to 10%. Sirpur (U) mandal is the lowest (3.7%) facilities mandal. It is also the lowest performing Mandal in the entire state.

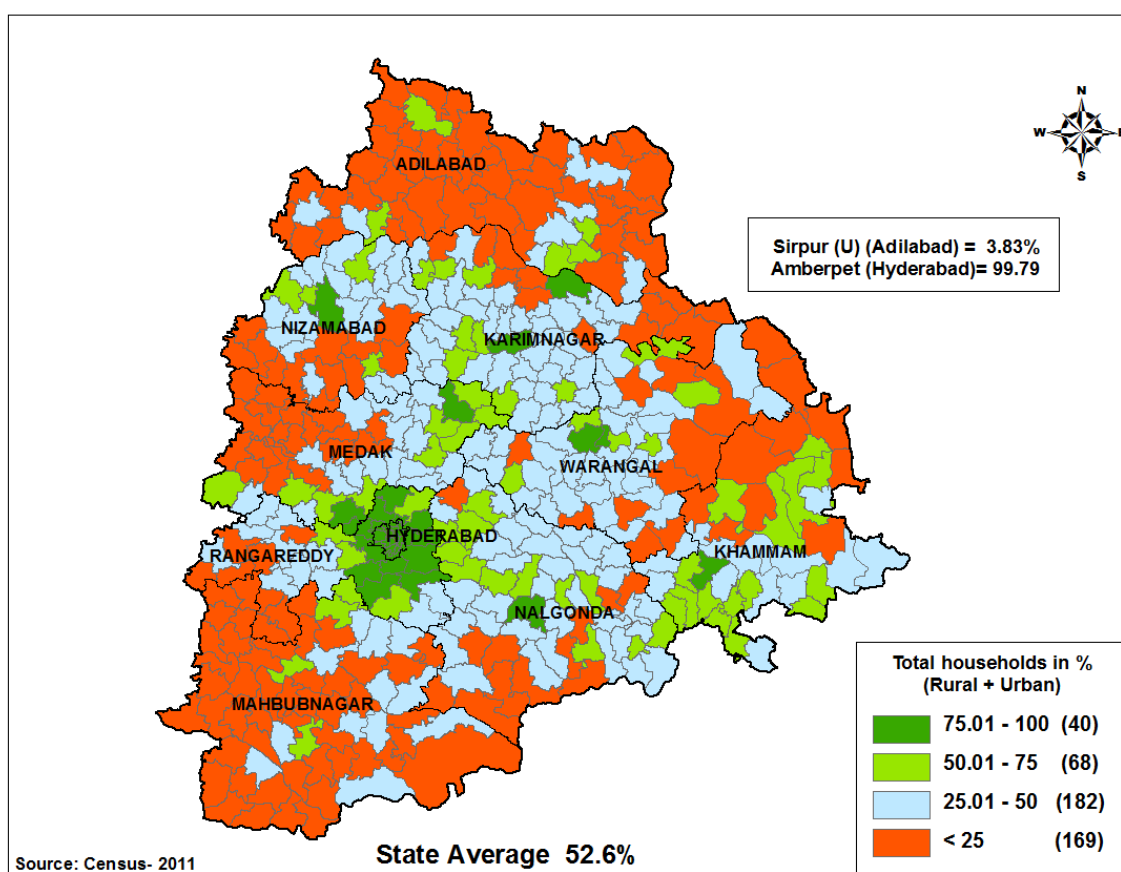
Mahbubnagar District having very poor performing district in the entire state with 33% drinking water facilities. Thimmajipet (54.85%), Mahbubnagar (63.47%) and Kalwakurthy (66 %) Mandals are having facilities in the range of 60 - 70%. Only 9 Mandals households are having more than 50% drinking water facilities in the premises. Amongst all Mandals, 50% of the Mandals are having the least accessibility to drinkable water within the premises. Only 16 Mandals are having less than 20% facilities in household premises. Allampur (5.95%) and Ghattu (6.02%) are the least performing Mandals in terms of availability of drinking water within the premises. It is one of the backward districts in the state. Maximum people are illiterate's and it has filled with rural population (85%). Mahbubnagar mandal also having very poor facilities (63.47%). Actually the Mahbubnagar district is giving entrance to the Krishna River (Tangadi village) but not proper utilization of the river water.

### **Latrine Facilities:**

Overall Telangana state 52.6% households are having latrine facilities within their premises. All 459 mandals, only 40 Mandal households are having 75-100% toilet facilities in their premises. Majority of these Mandals belongs to Hyderabad and Rangareddy districts. 68 Mandal households are having 50-75% toilet facilities in the premises and rest of the 169 Mandal households are having less than 25% toilet facilities. Amberpet (99.8%) having the highest percentage of the latrine facility in the state and it located in Hyderabad district. Overall the state only 8 Mandals are in worst situation (less than 5 %) they are Sirpur (U) (Adilabad) 3.83, Doulothabad (Mahbubnagar) 4.16, Ghattu (Mahbubnagar) 4.26, Narnoor (Adilabad) 4.32, Damaragidda (Mahbubnagar) 4.87, Tiryani (Adilabad) 4.92, Maganoor (Mahbubnagar) 4.95, Bazarhathnoor (Adilabad) 4.96.

Hyderabad district households are having 98.5% latrine facilities within the premises. Amberpet has the highest percentage (99.8%). Other Mandals of the districts, like nampally (98.3%), Asifnagar (98.5), Maredpalle (98.6), Bandlaguda (98.9), Musheerabad (99.1), Khairatabad (99.2), Bahadurpura (99.3), Golconda (99.4), Himayathnagar (99.5), Charminar (99.7) and Ameerpet (99.79) mandals households are having good sanitation facilities.

Rangareddy district is having mixed population. It has fully urbanised Mandals and fully rural population Mandals. Some Mandals have very poor situation which is far away from the urbanised area. Basheerabad (9%), Doma, Yelal, Dharur, Kukacherla and Ghandeed Mandals have less than 15% latrine facility in their household's premises. 11 Mandals' households having 25-50% of the facility within the premises. Some Mandals have more than 90% of the latrine facilities within the household's premises, like Ghatkesar (92%), Keesara (93%), Rajendranagar (95.6%), Serilingampally (95.8%), Quthbullapur (97%), Uppal (97.5%), Saroornagar and Balanagar (97.8%) and Malkajgiri (98%). These mandals are completely occupied with urbanized population. If the Government and GHMC have to take, policy level recommendations to improve proper sanitation facilities, it will reach 100% households.



**Figure 4: Mandal Wise % of Households with Latrine Facility within the Premises**

In Karimnagar District, Karimnagar and Ramagundam Mandals have more than 75% latrine facilities within the household premises. Amongst all the 57 Mandals, 3 Mandals have below 15%. Sarangapur and Mutharam (Mahadevpur) and Mahadevpur Mandals are the lowest facility Mandals with 13.61%, 13.97% and 14% respectively. 36 Mandals having 25-50% sanitation facilities within the premises. Koheda (51%), Huzurabad (51.6%), Boinpalle (56.2%), Metpalle (58%), Vemulawada (59%), Jagityal (63%), Koratla (64%) and Sircilla (66.5%) 9 Mandals have 50-75% latrine facilities within the premises. Recently, government announced Sircilla constituency is open defecation free constituency.



Khammam District having 51% latrine facilities within the household's premises. Only Khammam (U) Mandal (83.38%) households are having more than 75% latrine facilities. Only 16 Mandals are having proper sanitation facilities (more than 50%). Amongst all the Mandals, 9 Mandals households are having less than 25% of the proper latrine facilities. Wazeed (5.36%) and Dummugudem (12.17 %) mandals are the lowest performing mandals in the district. No Mandal has more than 90% of the latrine facilities.

In Medak district, 44% households are having latrine facilities within their premises. Only Ramachandrapuram (93.84 %), Patancheru (78.85 %) and Siddipet (77.54 %) Mandal households are having more than 75% latrine facilities. These Mandals having more urbanised population. Ramachandrapuram and Patancheru Mandals are very close to the state capital city. Patancheru also needed some policy level action to improve the sanitation situation. Overall district, Only 12 Mandals have proper sanitation facilities (more than 50%). Total district only 17 Mandals are having less than 25% proper sanitation facilities. Kangti and Manoor are the lowest performing Mandals it covered only 9.67% and 7.03% households respectively. Gajwel Mandal (56%) is some better facilities compare to the other mandals, Medak mandal (42%) having very less sanitation facilities. The district have good resources, if the Government have to take, policy level recommendations to improve proper sanitation facilities, it will reach 100% households. The district has more rural population, support to need to know advantages of the individual toilets and proper sanitation facilities. Recently, government announced Siddipet constituency is open defecation free constituency.

In Warangal district, only 44% households are having latrine facilities within their premises. Only Warangal (86.28%) and Hanamkonda (82.68%) Mandals are having more than 80% latrine facilities. Overall district, 90% of the Mandals are having below 50% of the facilities. Amongst all the Mandals, 10 Mandal households are having less than 25% proper latrine facilities within the premises. Kothagudem and Tadvai are the lowest performing Mandals and these comprise to 10.41 % and 13.68 % respectively. Urban population areas Mandals are having more than 50%, such as Bhupalapalli (50%), Narsampet (52%), Geesukonda (58%) and Janagaon (65%). To improve the situation, people should have interest to construct individual latrines in their household's premises. If Government take initiation to knowledge the people about all the state and central government ongoing schemes, how to approach to the offices and how to get benefits of the schemes.

Nizamabad District having only 41.56% latrine facilities within the household premises. Only Nizamabad (78%) and Kamareddy (70%) Mandals are having more than 70% latrine facilities. District head quarter (Nizamabad) also not covered more than 80% of the households. Yedapalle, Armur and Bodhan Mandals are having 50-60% of the facilities. Total district only 12 Mandals are having less than 25% sanitation facilities. Gandhari (10.46%), Lingampet (11%) and Jukkal (11.33%) are the lowest performing Mandals and no Mandal is less than 10%.

Nalgonda has very low latrine facilities, households are having 41% latrine facilities within the premises. Only Nalgonda Mandal has more than 75% latrine facilities. Bhongiri (60%) Choutuppal (63%) and Suryapet (65%) Mandal households are having above 60% of the latrine facilities. It observed in Choutuppal Mandal, more latrine facilities than the drinking water facilities, because of it located very near to capital city of the state. These people are influenced by the urban culture. Total district, only 9 Mandals households are having 50-60% latrine facility. Yadagirigutta Mandal constitute only 54%, it is the one of the pilgrim temple of the Hindu religion. Amongst all the Mandals, 12 Mandals have less than

25 % sanitation facilities within the household's premises. Pedda Adiserlapalle (14.26 %) and Chandampet (12.55 %) are the lowest performing Mandals.

In Adilabad District, only 29% households having latrine facilities. Mancherla (69%), Mandamarri (65%) and Bellampalle (58%) Mandal households are having 58% - 70% latrine facilities within the premises. Amongst all Mandals, 39 Mandals households are having less than 25% proper latrine facilities within the premises. Sirpur (U) and Narnoor and Tiryani are the lowest performing Mandals and it's having only 3.83%, 4.32% and 4.9% respectively.

Mahbubnagar district is the lowest performing district in the new state. It has more rural population. Overall district only 26% households have latrine facility within the premises. Mahbubnagar, Kothur and Shadnagar households are having 60% - 70% latrine facilities within the premises. Wanaparthy Mandal constitutes 53% only. Amongst the all the Mandals, 49 (more than 70%) Mandals have less than 25% latrine facilities within the premises. Only 16 Mandals households have 25%-72% facilities within the household's premises. Overall district, Doulatnagar and Ghattu are the lowest performing mandals it having 4.16% and 4.26% respectively.

### **Summary and Recommendations:**

Overall, Telangana has good facilities in both situations due to urban areas such as Hyderabad and its surrounding areas. Excluding these urban areas, the rest of Telangana has very poor facilities in both situations. Urban households are having good facilities compare to the rural households. Hyderabad, Rangareddy districts are covered better facilities whereas rural Rangareddy district is having very poor facilities. Karimnagar district is in a better position in the both facilities. Khammam and Warangal districts are having some better facilities in urban area and some agency & tribal population areas are having very low facilities. Medak district urban areas are having good facilities compare to the rural areas. Fluoride water observed In Nalgonda district and most of the mandals doesn't get good adequate water. Adilabad and Mahbubnagar districts have very poor conditions in entire the state in the both the situations. Maximum households' people have to go farther to fetch water. The district people are still practicing open defecation.

Census data will be the most accurate and authenticated data and if this data is organized analysed properly and accessible to each and every Mandal of the State it would be very helpful for stakeholders to understand the status of particular Mandal. This will also help them to review the progress and develop time bound action plan for speedy completion of the required facilities.

### **Recommendations:**

- MRO and MPDO's may regularly review the progress of drinking water and sanitation conditions based on the report as a base document.
- RWS Department may categorize with in the villages wise and concentrate more on the poor progress villages to speed up and mainstream the same.
- A systematic plan of action needs to be developed in consultations with the line departments to provide safe and adequate drinking water and proper sanitation facilities under the on-going government programs.
- Government needs to educate the people on importance of safe drinking water and sanitation and also educate them on the health hazards because of lack of sanitation.

- Government implementing stakeholders should educate the people on provisions of the government under Swachh Bharat Mission and other government programs for providing safe drinking water and safe sanitation.
- Periodical monitoring and review on the progress, issues and bottlenecks of the program and address the same in consultation with the implementing stakeholders would improve the status effectively.
- To find out which Mandal have more availability of drinking water facilities within the household premises then latrine facilities. If find drinking water areas it will easy to construct latrine facilities within the household premises because of already water facility is available within the household's premises.

### **Acknowledgement:**

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